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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,100	12/05/2003	Brad Calder	BITRAK.001A	3083

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EXAMINER	
KANG, INSUN	
ART UNIT	**PAPER NUMBER**
2193	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/10/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/10/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/729,100	CALDER ET AL.	
	Examiner	Art Unit	
	Insun Kang	2193	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2004 and 05 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/8/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responding to application papers dated 3/8/2004 and 12/5/2003.

2. Claims 1-47 are pending in the application.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-30 and 41-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the trigger information" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 4 recites the limitation "the trigger information" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Per claim 10, 24, and 41, "instructions" in claim 10 (line 9), 24 (line 7), and 41 (line 9) is interpreted as: "the machine instructions."

Per claim 16, "the selected constructs" is interpreted as: the selected construct.

Claim 26 recites the limitation "the selected instructions" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claim 27 recites the limitation "the selected instruction" in line 2. There is insufficient antecedent basis for this limitation in the claim.

As per claims 2, 3, 5-9, 11-15, 17-23, 25, 28-30, and 42, these claims are rejected for dependency on the above rejected parent claims.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 37-40 and 45 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 37-40 and 45 are non-statutory because they are directed to an "interpreter" without recitation of a computer or a computer-readable medium embodying the claimed program instructions. The claims merely recite an "interpreter" that is disembodied arrangement so as to be called a "computer program" or compilation of facts, information, or data *per se*, without creating any functional interrelationship, either as part of the stored data or as part of the computing processes performed by the computer ("acts") or computer readable medium so as to enable the computer to perform the claimed code as recited. Thus the claims represent non-functional descriptive material that is not capable of producing a useful result, and hence represent only abstract ideas. Therefore, the claims are non-statutory.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-47 are rejected under 35 U.S.C. 102(e) as being anticipated by Dimpsey et al. (US patent 7,114,150) hereafter Dimpsey.

Per claim 1:

Dimpsey discloses:

- identifying at least one construct in a program (i.e. "a specified location in a routine," col. 8 lines 33-45; "the hot spot... is identified," col. 2 lines 58-51);
- and interpreting, via an interpreter (i.e. If the code of the hot spot method is interpreted," col. 15 lines 52-61),
- a program on a processor (i.e. "execution of a hook," col. 8 lines 33-45),
- wherein during the interpretation, analysis code is invoked by the interpreter at the identified constructs (i.e. "if the code of the hot spot method is interpreted, the byte codes...may be changed to insert the necessary instrumentation...a hook, to a method that identifies the caller of the hot spot," col. 15 lines 62-67)
- wherein the analysis code includes machine instructions for execution directly on the processor (i.e. "Hooks may be inserted...dynamically ...through modification of a loaded executable," col. 10 lines 17-25)

- and wherein the analysis code and the interpreter communicate via a predefined interface (i.e. "a JVM interface," col. 18 lines 4-15; "JVMPI," col. 2 lines 13-17).

Per claim 2:

Dimpsey further discloses:

- wherein the construct is selected from the group comprising: a basic block, an instruction, a group of instructions, and a procedure (i.e. "a specified location in a routine," col. 8 lines 33-45; "the hot spot... is identified," col. 2 lines 58-51).

Per claim 3:

Dimpsey further discloses:

- during the identification of a construct, at least a portion of the trigger information is stored in a file for usage by the interpreter (i.e. "stores the trace data buffer," col. 8 lines 35-45; col. 9 lines 28-54).

Per claim 4:

Dimpsey further discloses:

- wherein during the identification of a construct, at least a portion of the trigger information is stored is the binary program (i.e. col. 9 lines 28-54).

Per claim 5:

Dimpsey further discloses:

- wherein the predefined interface includes a registration procedure for the analysis code to register with the interpreter (i.e. col. 15 lines 52-61).

Per claim 6:

Dimpsey further discloses:

- wherein invoking the analysis code consists of providing to the analysis code at least one item selected from the group comprising: a null statement, a register value, a memory value, a program counter address, branch instructions, and an effective address (i.e. col. 16 lines 12-20; col. 15 lines 29-41 and 52-61).

Per claim 7:

Dimpsey further discloses:

- registering the analysis code with the interpreter via a predefined application programming interface (i.e. "a JVM interface," col. 18 lines 4-15; "JVMPI," col. 2 lines 13-17).

Per claim 8:

Dimpsey further discloses:

- wherein interpretation comprises emulation (i.e. JVM, col. 15 lines 52-61).

Per claim 9:

Dimpsey further discloses:

wherein interpretation comprises simulation (i.e. "Hardware performance tools," col. 1 lines 28-30).

Per claim 10:

Dimpsey discloses:

- storing a compiled analysis binary program, wherein the analysis binary program includes machine instructions from a first machine instruction set (i.e. "stores the trace data buffer," col. 8 lines 35-45; col. 9 lines 28-54).
- wherein the analysis binary program is configured to analyze or trace state information of an interpretable program; and interpreting the interpretable program for execution on a processor (i.e. "if the code of the hot spot method is interpreted, the byte codes...may be changed to insert the necessary instrumentation...a hook, to a method that identifies the caller of the hot spot," col. 15 lines 62-67)
- wherein the interpretable program includes machine instructions from a second machine instruction set, wherein the processor is configured to execute instructions from the first machine instruction set, and wherein during the interpreting, upon encountering a selected construct in the interpretable

program(i.e. "Hooks may be inserted...dynamically ...through modification of a loaded executable," col. 10 lines 17-25)

- the analysis binary program is invoked and is provided at least one item of state information about the execution of the interpretable program (i.e. "The execution of the hooks ...to get an understanding of the caller method's characteristics," col. 2 lines 48-55).

Per claim 11:

Dimpsey further discloses:

- the state information includes register values, parameter values, instruction addresses, or data addresses (I.e. col. 7 lines 54-60; col. 8 lines 39-50).

Per claim 12:

Dimpsey further discloses:

- wherein the second machine instruction set includes generic machine instructions that are configured to be emulated on heterogeneous hardware platforms (i.e. Java instruction...intermediate values...for a variety of platform architectures," col. 7, lines 63-67).

Per claim 13:

Dimpsey further discloses:

- wherein the construct comprises a procedure (i.e. "a routine," col. 8 lines 35-45).

Per claim 14:

Dimpsey further discloses:

- wherein the construct comprises an instruction (i.e. "a program," col. 8 lines 35-45).

Per claim 15:

Dimpsey further discloses:

- wherein the interpretable program is a binary program configured for direct execution on a second processor (i.e. col. 7, lines 40-44).

Per claim 16:

Dimpsey further discloses:

- storing locations in the interpretable program in a file; and using the file during the interpretation so as to identify the selected constructs (i.e. " hash tables may be employed to maintain names associated the records in the trace file...an identifier or a key...into a value for the location of the corresponding data in the table," col. 9 lines 28-54).

Per claim 17:

Dimpsey further discloses:

- inserting a trigger instruction proximate to the selected construct, and wherein an interpreter is configured to recognize the trigger instruction as an

instruction to invoke the analysis binary program(i.e. "if the code of the hot spot method is interpreted, the byte codes...may be changed to insert the necessary instrumentation...a hook, to a method that identifies the caller of the hot spot," col. 15 lines 62-67).

Per claim 18:

Dimpsey further discloses:

- wherein the inserted trigger instruction is a machine instruction from the second machine instruction set (col. 15 lines 62-67).

Per claim 19:

Dimpsey further discloses:

- wherein the inserted trigger instruction is a machine instruction that does not substantially affect the performance of the interpretable program (i.e. the dynamic instrumentation of code...to minimize system perturbation during tracing of the execution," col. 2 lines 36-47).

Per claim 20:

Dimpsey further discloses:

- wherein the inserted trigger instruction is a no-op machine instruction (i.e. "dynamically inserted hooks," col. 16 lines 12-20).

Per claims 21 and 22, they are another method versions of claims 8 and 9, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 8 and 9 above.

Per claim 23:

Dimpsey further discloses:

- additionally comprising ignoring selected machine interactions in the interpretable program (i.e. col. 16 lines 21-30).

Per claims 24-30, they are the system versions of claims 10, 12, 16-18, 21, and 22, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 10, 12, 16-18, 21, and 22 above.

Per claims 31-36, they are another method versions of claims 1-9, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 1-9 above.

Per claims 37, 39, and 40, they are the interpreter versions of claims 1-9, respectively, and are rejected for the same reasons set forth in connection with the rejection of claims 1-9 above.

Per claim 38:

Dimpsey further discloses:

- a predefined application programming interface that is defined by the interpreter so as to allow the analysis code to register and to define one or more callback routines (i.e. col. 11 lines 37-50).

Per claim 41, it is another method version of claim 17, respectively, and is rejected for the same reasons set forth in connection with the rejection of claim 17 above.

Per claim 42:

Dimpsey further discloses:

- selectively disabling certain of the triggers in the trigger information (i.e. "removal of a hook...turning off the flags," col. 16 lines 21-30).

Per claim 43:

Dimpsey discloses:

- dynamically translating instructions in original code written for a first architecture into native code for a second architecture, the method comprising the steps of: designating at least one trigger in the original code; translating the instructions into native code instructions (i.e. If the code of the hot spot method is interpreted," col. 15 lines 52-61; "a specified location in a routine," col. 8 lines 33-45; "the hot spot... is identified," col. 2 lines 58-51);
- upon triggering the trigger, transmitting state information via a predefined interface, to analysis code (i.e. col. 15 lines 62-67; col. 10 lines 17-25; "a JVM

interface," col. 18 lines 4-15; "JVMPI," col. 2 lines 13-17).

Per claim 44:

Dimpsey discloses::

- customizing the analysis code for operation with the original code i.e. col. 15 lines 62-67; col. 10 lines 17-25).

Per claim 45:

Dimpsey discloses:

- at least one interpreter module for interpreting a binary program, wherein the module provides at least one interface for allowing an analysis module to identify to the interpreter module trace information that is to be gathered during the execution of the binary program (i.e. If the code of the hot spot method is interpreted," col. 15 lines 52-61; "a specified location in a routine," col. 8 lines 33-45; "the hot spot... is identified," col. 2 lines 58-51; "the data collected I the trace buffer is sent to a trace file for post-processing," col. 9 lines 28-54; col. 15 lines 62-67; col. 10 lines 17-25).

Per claim 46:

Dimpsey discloses:

- identifying at least one trigger location in the binary program; storing the identified trigger location in a file that is separate from the binary program; interpreting the binary program; and invoking analysis code at the identified

triggers(i.e. If the code of the hot spot method is interpreted," col. 15 lines 52-61; "a specified location in a routine," col. 8 lines 33-45; "the hot spot... is identified," col. 2 lines 58-51; "the data collected I the trace buffer is sent to a trace file for post-processing," col. 9 lines 28-54; col. 15 lines 62-67; col. 10 lines 17-25).

Per claim 47:

Dimpsey discloses:

- identifying at least one trigger location in the binary program; storing the identified trigger location in a data section of the binary program interpreting the binary program; and invoking analysis code at the identified triggers (i.e. If the code of the hot spot method is interpreted," col. 15 lines 52-61; "a specified location in a routine," col. 8 lines 33-45; "the hot spot... is identified," col. 2 lines 58-51; "the data collected I the trace buffer is sent to a trace file for post-processing," col. 9 lines 28-54; col. 15 lines 62-67; col. 10 lines 17-25).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Insun Kang whose telephone number is 571-272-3724. The examiner can normally be reached on M-R 6:30-5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MENG AI AN can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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